



Dms

1688

# MATERIAL SAFETY DATA SHEET

97367 (4-85)

MSDS NUMBER

23-10

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24 HOUR EMERGENCY ASSISTANCE			GENERAL MSDS ASSISTANCE		
SHELL: 713-473-9461 CHEMTREC: 800-424-9300			SHELL: 713-241-4819		
ACUTE HEALTH * + 2	FIRE 1	REACTIVITY 0	HAZARD RATING ▶	LEAST - 0 HIGH - 3	SLIGHT - 1 EXTREME - 4
*For acute and chronic health effects refer to the discussion in Section III					

**BE SAFE**  
READ OUR PRODUCT  
SAFETY INFORMATION  
... AND  
PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

SECTION I	NAME
PRODUCT ▶	EPON(R) RESIN 828
CHEMICAL NAME ▶	BISPHENOL A/EPICHLOROHYDRIN BASED EPOXY RESIN
CHEMICAL FAMILY ▶	EPOXY RESIN
SHELL CODE ▶	43240

Industrial Hygiene

JUN 08 1989

SECTION II-A	PRODUCT/INGREDIENT
NO.	COMPOSITION
P	BISPHENOL A/EPICHLOROHYDRIN BASED EPOXY RESIN
	CAS NUMBER 25068-38-6
	PERCENT 100

THIS PRODUCT IS AN EPOXY RESIN PRODUCED BY THE CONDENSATION REACTION OF EPICHLOROHYDRIN AND BISPHENOL-A. THESE RAW MATERIALS ARE CONSUMED IN THE PROCESS. RESIDUAL LEVELS OF EPICHLOROHYDRIN ARE CONTROLLED TO 1 PPM, MAX., IN THE PRODUCT.

SECTION II-B	ACUTE TOXICITY DATA
NO.	ACUTE ORAL LD50
P	11.4 G/KG (RAT)
P	15.6 G/KG (MOUSE)
	ACUTE DERMAL LD50
	> 20 ML/KG (RABBIT)
	ACUTE INHALATION LC50
	NO DEATHS IN SAT'D AIR, 8 HR*

\*THIS INHALATION TEST MAY NOT BE RELEVANT DUE TO LOW VOLATILITY OF THE RESIN. (SEE SECTION VII)

SECTION III	HEALTH INFORMATION
THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).	
<b>EYE CONTACT</b> BASED ON PRODUCT TESTING PRODUCT IS MODERATELY IRRITATING TO THE EYES. CONTACT WITH PRODUCT AT ELEVATED TEMPERATURES CAN RESULT IN THERMAL BURNS.	
<b>SKIN CONTACT</b> BASED ON PRODUCT TESTING PRODUCT IS MODERATELY IRRITATING TO THE SKIN. BASED ON PRODUCT TESTING PRODUCT MAY CAUSE SKIN SENSITIZATION. CONTACT WITH PRODUCT AT ELEVATED TEMPERATURES CAN RESULT IN THERMAL BURNS.	
<b>INHALATION</b> BECAUSE OF ITS LOW VOLATILITY (SEE SECTION VII) THIS PRODUCT IS NOT LIKELY TO BE AN INHALATION HAZARD.	
<b>INGESTION</b> BASED ON PRODUCT TESTING PRODUCT IS CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.	

**SIGNS AND SYMPTOMS**

IRRITATION AS NOTED. SKIN SENSITIZATION (ALLERGY) MAY BE EVIDENCED BY RASHES, ESPECIALLY HIVES.

**AGGRAVATED MEDICAL CONDITIONS**

PREEXISTING SKIN AND EYE DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT. PREEXISTING SKIN OR LUNG ALLERGIES MAY INCREASE THE CHANCE OF DEVELOPING INCREASED ALLERGY SYMPTOMS FROM EXPOSURE TO THIS PRODUCT.

**OTHER HEALTH EFFECTS**

SEE SECTION VI FOR SUPPLEMENTAL HEALTH INFORMATION.

**SECTION IV****OCCUPATIONAL EXPOSURE LIMITS**

NO.	PEL/TWA	OSHA	PEL/CEILING	TLV/TWA	ACGIH	TLV/STEL	OTHER
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NO OSHA NOR ACGIH LIMITS HAVE BEEN ESTABLISHED FOR THIS PRODUCT.

**SECTION V****EMERGENCY AND FIRST AID PROCEDURES****EYE CONTACT**

FLUSH EYES WITH PLENTY OF WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION. IF CONTACT WITH HOT PRODUCT OCCURS IMMEDIATELY FLUSH WITH COOL WATER FOR 15 MINUTES. GET MEDICAL ATTENTION IMMEDIATELY.

**SKIN CONTACT**

REMOVE CONTAMINATED CLOTHING/SHOES AND WIPE EXCESS FROM SKIN. FLUSH SKIN WITH WATER. FOLLOW BY WASHING WITH SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. DO NOT REUSE CLOTHING UNTIL CLEANED. CONTAMINATED LEATHER ARTICLES, INCLUDING SHOES, CANNOT BE DECONTAMINATED AND SHOULD BE DESTROYED TO PREVENT REUSE. IF CONTACT WITH HOT PRODUCT OCCURS IMMEDIATELY FLUSH WITH COOL WATER FOR 15 MINUTES. CAREFULLY REMOVE CLOTHING; IF CLOTHING IS STUCK TO A BURN AREA DO NOT PULL IT OFF, BUT CUT AROUND IT. COVER BURN AREA WITH A CLEAN MATERIAL. GET MEDICAL ATTENTION IMMEDIATELY.

**INHALATION**

REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

**INGESTION**

DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.\*

**NOTE TO PHYSICIAN**

\*IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, E.G., NEAT EPOXY RESINS.

**SECTION VI****SUPPLEMENTAL HEALTH INFORMATION**

2-YEAR BIOASSAYS IN MICE EXPOSED BY THE DERMAL ROUTE TO THIS PRODUCT, TO THE DIGLYCIDYL ETHER OF BISPHENOL A (DGEBA) OR TO OTHER COMMERCIAL RESINS WHICH ARE COMPOSED PREDOMINANTLY OF DGEBA HAVE YIELDED VERY LIMITED EVIDENCE OF WEAK CARCINOGENICITY. (DGEBA IS A MAJOR COMPONENT (80-85% WT) OF EPON RESIN 828). THE AUTHORS OF THIS WORK CONCLUDED THAT THE RENAL TUMOR EVIDENCE WITH EPON RESIN 828 "WAS OF NO BIOLOGICAL IMPORTANCE" AND THAT THE RESIN "IS NOT A SYSTEMIC CARCINOGEN WHEN APPLIED TO THE SKIN OF CF1 MICE." BASED UPON THIS AND ALL OTHER AVAILABLE INFORMATION, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) CONCLUDED (1988) THAT DGEBA WAS NOT CLASSIFIABLE AS A CARCINOGEN.

MUTAGENICITY: BOTH EPON RESIN 828 AND DGEBA, ITS MAJOR CONSTITUENT, HAVE PROVED TO BE INACTIVE WHEN TESTED BY IN VIVO MUTAGENICITY ASSAYS. THEY HAVE BOTH SHOWN ACTIVITY BY IN VITRO MICROBIAL MUTAGENICITY SCREENING TESTS AND HAVE PRODUCED CHROMOSOMAL ABERRATIONS IN CULTURED RAT LIVER CELLS. THE SIGNIFICANCE OF THIS INFORMATION TO MAN IS UNKNOWN.

## SECTION VII

## PHYSICAL DATA

BOILING POINT: >500\*  
(DEG F)SPECIFIC GRAVITY: 1.17  
(H2O=1)VAPOR PRESSURE: 0.03 AT  
(MM HG) 77 DEG CMELTING POINT: NOT AVAILABLE  
(DEG F)SOLUBILITY: NEGLIBLE  
(IN WATER)VAPOR DENSITY: NOT APPLICABLE  
(AIR=1)

EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT APPLICABLE

\*SEE FLASH POINT

APPEARANCE AND ODOR:  
VERY LIGHT YELLOW, VERY VISCOUS LIQUID.

## SECTION VIII

## FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:  
480 DEG F (PMCC)FLAMMABLE LIMITS % VOLUME IN AIR  
LOWER: N/AV UPPER: N/AV

## EXTINGUISHING MEDIA

USE WATER FOG, FOAM, DRY CHEMICAL OR CO2.

## SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

## UNUSUAL FIRE AND EXPLOSION HAZARDS

SEE SECTION XII.

## SECTION IX

## REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

## CONDITIONS AND MATERIALS TO AVOID:

CAN REACT VIGOROUSLY WITH STRONG OXIDIZING AGENTS, STRONG LEWIS OR MINERAL ACIDS, AND STRONG MINERAL AND ORGANIC BASES/ESPECIALLY PRIMARY AND SECONDARY ALIPHATIC AMINES. REACTION WITH SOME CURING AGENTS MAY PRODUCE CONSIDERABLE HEAT. RUN-A-WAY CURE REACTIONS MAY CHAR AND DECOMPOSE THE RESIN SYSTEM, GENERATING UNIDENTIFIED FUMES AND VAPORS WHICH MAY BE TOXIC. SEE SECTION XII.

## HAZARDOUS DECOMPOSITION PRODUCTS

CARBON MONOXIDE, ALDEHYDES, ACIDS, AND OTHER ORGANIC SUBSTANCES MAY BE FORMED DURING COMBUSTION OR ELEVATED (>500 DEG F) TEMPERATURE DEGRADATION. SEE SECTION XII.

## SECTION X

## EMPLOYEE PROTECTION

## RESPIRATORY PROTECTION

NOT ORDINARILY REQUIRED.

## PROTECTIVE CLOTHING

AVOID CONTACT WITH EYES. WEAR SAFETY GLASSES OR GOGGLES AS APPROPRIATE. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WEAR CHEMICAL-RESISTANT GLOVES AND OTHER CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

## SECTION XI

## ENVIRONMENTAL PROTECTION

## SPILL OR LEAK PROCEDURES

MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. \*\*\* LARGE SPILLS \*\*\* WEAR RESPIRATOR AND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. \*\*\* SMALL SPILLS \*\*\* TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

## SECTION XII

## SPECIAL PRECAUTIONS

STORE IN A COOL, DRY PLACE. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN HAZARDOUS PRODUCT RESIDUES. HANDLE IN ACCORDANCE WITH THE HAZARD POTENTIAL OF CURING AGENT(S) USED. CAUTION: MAY CAUSE IRRITATION. AVOID CONTACT WITH EYES. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, APPLYING COSMETICS, OR USING TOILET FACILITIES. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE. CONTAMINATED LEATHER ARTICLES, INCLUDING SHOES, CANNOT BE DECONTAMINATED AND SHOULD BE DESTROYED TO PREVENT REUSE.

HEATING THIS RESIN ABOVE 300 DEG F IN THE PRESENCE OF AIR MAY CAUSE SLOW OXIDATIVE DECOMPOSITION ABOVE 500 DEG F, POLYMERIZATION MAY OCCUR. SOME CURING AGENTS, E.G., ALIPHATIC POLYAMINES CAN PRODUCE EXOTHERMIC REACTIONS WHICH IN LARGE MASSES CAN CAUSE RUNAWAY POLYMERIZATION AND CHARRING OF THE REACTANTS. FUMES AND VAPORS FROM THESE THERMAL AND CHEMICAL DECOMPOSITIONS VARY WIDELY IN COMPOSITION AND TOXICITY. DO NOT BREATHE FUMES.

USE A NIOSH-APPROVED RESPIRATOR AS REQUIRED TO PREVENT OVER EXPOSURE. IN ACCORD WITH 20 CFR1910.134, USE EITHER AN ATMOSPHERE-SUPPLY RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS. IF THIS RESIN IS HANDLED, SHIPPED, OR STORED IN BULK, THE RECOMMENDED PUMPING TEMPERATURE IS 180 DEG. F, MAX. TO PREVENT THERMAL BURNS, AVOID SKIN AND EYE CONTACT WITH HOT LIQUID.

## SECTION XIII

## TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:  
NOT HAZARDOUS BY D.O.T. REGULATIONS

D.O.T. PROPER SHIPPING NAME:  
NOT REGULATED

OTHER REQUIREMENTS:  
N/A

## SECTION XIV

## OTHER REGULATORY CONTROLS

THIS PRODUCT IS LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

## SECTION XV

## SPECIAL NOTES

SECTION VI - SUPPLEMENTAL INFORMATION - HAS BEEN REVISED. SEE ENVIRONMENTAL DATA SHEET FOR WASTE DISPOSAL AND OTHER ENVIRONMENTAL INFORMATION.

PRODUCT NAME: EPON(R) RESIN 828

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DATE PREPARED: APRIL 06, 1989  
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**BE SAFE**

READ OUR PRODUCT  
SAFETY INFORMATION ...AND PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

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**J. C. WILLETT**  
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SHELL OIL COMPANY  
PRODUCT SAFETY AND COMPLIANCE  
P. O. BOX 4320  
HOUSTON, TX 77210





# ENVIRONMENTAL DATA SHEET

EDS NUMBER 23 PAGE 1

97449 (9-87)

PRODUCT ▶ EPON(R) RESIN 828

PRODUCT  
CODE ▶ 43240

## SECTION I

## PRODUCT/COMPOSITION

NO.	COMPONENT	CAS NUMBER	PERCENT
P	BISPHENOL A/EPICHLOROHYDRIN EPOXY RESIN	25068-38-6	100

## SECTION II

## SARA TITLE III INFORMATION

NO.	EHS RQ (LBS) (*1)	EHS TPQ (LBS) (*2)	SEC 313 (*3)	313 CATEGORY (*4)	311/312 CATEGORIES (*5)
P					H-1

## FOOTNOTES

- \*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC.302  
\*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302  
\*3 = TOXIC CHEMICAL, SEC 313  
\*4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM  
\*5 = HAZARD CATEGORY FOR SARA SEC. 311/312 REPORTING
- |          |                                       |   |
|----------|---------------------------------------|---|
| HEALTH   | H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD | H-2 = DELAYED (CHRONIC) HEALTH HAZARD   |
| PHYSICAL | P-3 = FIRE HAZARD                     | P-4 = SUDDEN RELEASE OF PRESSURE HAZARD |
|          | P-5 = REACTIVE HAZARD                 |   |

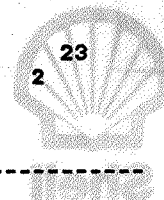
## SECTION III

## ENVIRONMENTAL RELEASE INFORMATION

## SECTION IV

## RCRA INFORMATION

IF THIS PRODUCT BECOMES A WASTE, IT WOULD NOT BE A HAZARDOUS WASTE BY RCRA CRITERIA (40 CFR 261). P  
AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.



# ENVIRONMENTAL DATA SHEET

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DATE PREPARED: OCTOBER 15, 1987

SHELL OIL COMPANY  
ENVIRONMENTAL AFFAIRS  
P. O. BOX 4320  
HOUSTON, TX 77210

FOR ADDITIONAL INFORMATION ON THIS ENVIRONMENTAL DATA PLEASE CALL  
(713) 241-2252

FOR EMERGENCY ASSISTANCE PLEASE CALL  
SHELL: (713) 473-9461  
CHEMTREC: (800) 424-9300

1 - REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC 302  
2 - THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302  
3 - TOXIC SUBSTANCE, SEC 302  
4 - CATEGORY 1 AS REQUIRED BY SEC 319 (40 CFR 319.10)  
5 - HAZARDOUS CATEGORY FOR DATA SEC. 311/312 REPORTING  
6 - IMMEDIATE (ACUTE) HEALTH HAZARD  
7 - PHYSICAL HAZARD  
8 - SELECTIVE HAZARD

## SECTION III ENVIRONMENTAL RELEASE INFORMATION

SECTION IV RCM INFORMATION  
IF THIS PRODUCT BECOMES A WASTE, IT WOULD NOT BE A HAZARDOUS WASTE BY RCRA CATEGORY 1 (40 CFR 311.10) IF AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.